Highway Winter Preparedness Update

Jonathan Gulliver

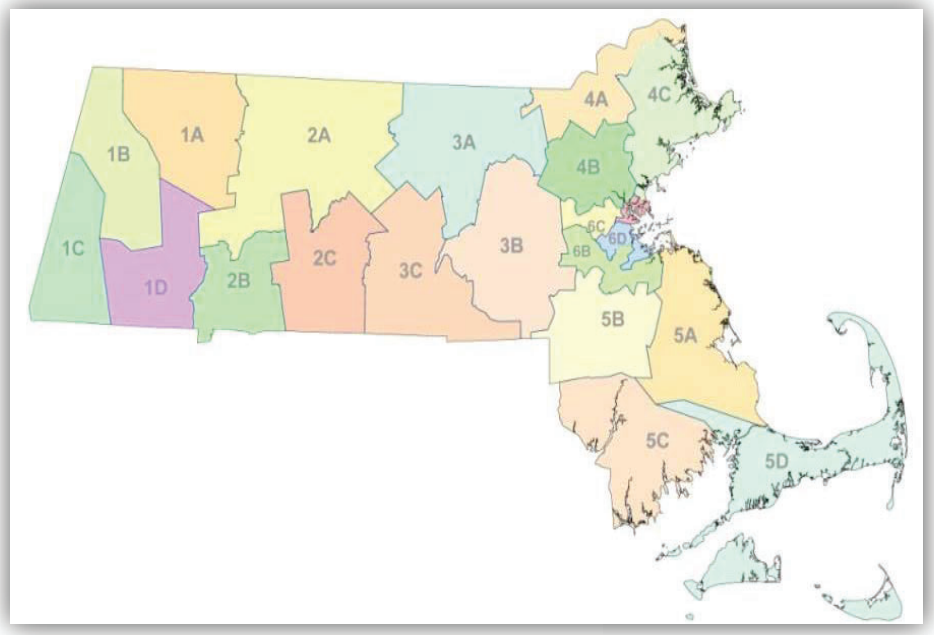
December 11, 2017

Technology Updates for this Year

1. Installing 400 Additional GPS and spreader data units on both MassDOT and vendor equipment
   - Last year began a pilot with GPS technology. we will have up to 600 units deployed in FY17.
   - The additional deployments will provide better analytics for making final decisions coming out of the pilot.
2. Mapping of all Snow and Ice plow routes in GIS and evaluation of overlap and efficiency.
   - Allow us to ensure crews know the areas they are responsible for and are not double applying material.
   - Identify routes that can be adjusted to reduce deadhead (non-working) travel.
3. Weather forecast, alerts and warning emails are available from our contractor to any municipality who would like to receive this information. This was done in partnership with the Massachusetts Municipal Association.

Overview

- Perform snow and ice removal on 15,000+ lane miles.
- 6 Districts and 20 sub-Districts
- 150 Depots/ Salt Storage Locations
- Over 700 personnel at the height of a storm



Snow and Ice Equipment

Vendor Equipment (1500 Vendors)

- This is a 1 year contract so MassDOT can expand use of GPS technology for monitoring and incorporate additional requirements into future contracts.

- Vendors are in the process of submitting documentation and having vehicles inspected and calibrated.

MassDOT Equipment

- Maintenance garages are performing preseason maintenance and repairs on all Snow and Ice equipment.

Available Equipment Breakdown			
Equipment Type	Total	Hired	State
Combo (Plow and Spreader)	1330	1100	230
Plows	2120	2000	120
Front End Loaders	460	360	100
Misc equipment (Tankers, Snowblowers)	285	250	35
Snow Melters	3	0	3
Totals	**4198**	**3710**	**488**

Snow and Ice Materials

Salt (Sodium Chloride)

- Salt is our major deicer. In terms of both time and budget, salt is widely regarded as the most effective means of deicing highways.

- MassDOT works with OSD to put out a statewide procurement contract for salt (VEH95) that any municipality can use.

- The contract has been renewed for FY18
  - 4 vendors (Eastern Salt, Morton Salt, Granite State Minerals, and Cargill)

- MassDOT is currently at 83% capacity with salt with deliveries continuing. Plan to be at 90% by the end of November
  - Avg cost per ton: FY17 ($69) vs. FY18 ($68)

Snow and Ice Materials

Liquid deicers (Magnesium Chloride & Blended Brine)

- Both are used to pretreat roadways to reduce the amount of salt needed for a storm and keeps ice from bonding to the pavement.
- Blended Brine is mixture of salt, water and Magnesium Chloride it is all produced by MassDOT at the depot in Sagamore. This has a longer lasting effect enabling us to pretreat roads well before a storm.

MassDOT Highway Materials Summary			
	Salt (Tons)	MgCL (Gallons)	Blended Brine (Gallons)
Capacity	370,000	920,000	140,000
On Hand 11/20/2017	307,000	640,000	60,000
Planned 11/30/2017	335,000	850,000	120,00

Internal Communications

Snow and Ice Desk

- Activated during major winter weather events
- Coordinates among Highway Districts to report recovery efforts and major roadway incidents every 2 hours

Internal Pages

- Highway Operations Center sends alerts about major roadway events
- Distributed internally then shared globally via Twitter

Public Information Office

- Constant coordination with media partners
- Messaging pre-storm and during to keep the traveling public informed and updated on recovery efforts

Public Communications

Twitter Updates @MassDOT

- Approx. 104,000 followers
- Receive alerts about incidents impacting normal traffic flow and recovery efforts during the storm

MassDOT Website

- Communicate incident information in real-time from Highway Operations Center
- View roadway traffic cameras across the state in real-time

511 System

- Mass511.com website features over 300 real-time traffic cameras
- Interactive Voice Response system that provides travel time and incident information

Variable Message Boards

- Provide real-time traffic information through Go-Time system
- Weather advisories to alert motorists pre/during storm
- Alert travelers to tandem/propane and speed limit restrictions of I-90

Other Snow and Ice Activities

DCR

- Perform Snow and Ice removal on 66% of DCR roadways.
- Purchase Salt for DCR's Metro Region.
- Provide funding via an ISA for DCR's Metro Region snow and ice activities.
- Provide material (Salt/Sand) to DCR central and western regions

Municipal/Other

- Provide materials (salt) to the National Guard vendors.
- Coordinate through ESF-1 to provide assistance to cities, towns and other entities when requested.

Immediate Actions and Next Steps

Milestone / Deliverable	Completion Date
Complete vendor Sign ups and inspections	11/15/2017 Completed
GPS & data download equipment installed/assigned to equipment	12/05/2017
Fill salt storage sheds to greater than 90% capacity	11/30/2017
Provide snow and ice training to MassDOT employees	11/30/2017
Provide snow and ice training to hired vendors	11/29/2017
Hope for the best prepare for the worst	*Always*